22nd May 2018

Our ref: GE17249/GE01/210522

FAO Lesleyanne Walsh
Ashe Construction
Ashe House,
Cooks Way,
Hitchin,
Hertfordshire,
SG4 0JE

By E-Mail Only

Dear Lesleyanne,

RE: Avenue 1, Letchworth.

1. Introduction

Geo-Environmental Services Limited was instructed by Ashe Construction Limited to undertake a supplementary ground investigation at Avenue 1, Letchworth Garden City, Herts, (Figure 1) herein referred to as 'the site'.

2. Development Proposals

The proposed development is understood to comprise a commercial area, with drive through restaurants, a hotel, supermarket, parking spaces, access routes and associated infrastructure.

3. Background

A Phase 1 (desk Study) and Phase 2 intrusive ground investigation was undertaken by GIP Limited in December 2016 referenced DNB23795 Rev 1 June 2017. At the time of the initial investigation, the site comprised a disused light industrial complex of mainly warehouses and offices, and with the exception of wooded sloping grassed areas around the perimeter, was mostly surrounded by hardstanding.

In summary, the report concluded:-

"No elevated concentrations of contaminants were recorded within the soils tested as part of this investigation. In addition, the nature of the proposed development (commercial / retail structures surrounded by hardstanding) means that end users shall be protected from any unidentified pockets of contamination that may be present. Therefore it is not believed necessary to incorporate any special precautionary measures into the development in order to be protective of Human Health".

"In accordance with BS8485 (Ref. 13) the highest recorded methane and carbon dioxide levels together with the maximum gas flow rate give the site a worst case 'Characteristic Gas Situation' (CS) of '1' defined as a 'very low' hazard potential (Table 2 of BS8485). As such, no precautionary measures are required to be incorporated within the proposed development."

"Whilst the risk posed to Controlled Waters by any potentially unidentified on-site contamination is minimised by the absence of shallow groundwater and the presence of predominantly cohesive superficial soils which would mitigate against the migration of contaminants, once the current buildings have been

removed, it may be prudent to undertake additional testing of the near surface materials to provide further information on the risk that the site poses to Controlled Waters (groundwater and nearby surface water courses).”

As part of Contaminated Land Condition in respect of planning ref PLAN/01527/18: A request for further investigation was made by the Local Authority EHO, this being:-

- *The re-investigation of the area at and around WS5, WS6 and WS7, which is not restricted to the near surface materials and which includes the contaminants of concern identified on p.29.*
- *The investigation of areas of the site that have not yet been investigated or had representative samples subject to the appropriate range of analysis.*
- *Full justification of the extent and scope of the site investigation in relation to BS10175 will be expected to support the supplementary site investigation*

It was agreed that the scope and extent of the original investigation was generally compliant with BS10175, although further information was required as set out above.

4. Supplementary Investigation

The scope of works agreed with the EHO and client comprised:

- Attendance of a Geo-Environmental/Geotechnical Engineer to set out and supervise the intrusive investigation.
- The construction of 10 trial pits (referenced TP1 – TP10). Each pit was to be excavated to reveal the underlying natural soils in order to facilitate sampling of both Made Ground and natural soils. Specific targeting of the area around WS5, WS6 and WS7 (ref GIP Limited DNB23795 Rev 1 June 2017)
- In-situ VOC testing by headspace method on samples retrieved at 0.5m intervals in each pit. The testing was to generally comply with BS8576, CIRIA C682 and BS10175.
- Geochemical testing on selected soil samples for a range of brownfield contaminants and to include leachate and VOC testing (if recorded in the field).

At the time of the supplementary fieldworks, demolition of the former buildings was complete and the north-eastern corner of the site was partly under construction. In addition, the southernmost area was undergoing surface clearance, comprising the removal of concrete slab and the crushing and storing of concrete. Due to site activities, the locations of TP4 and TP7 could not be accessed.

In light of the access restrictions, VOC screening was undertaken at regular intervals along the exposed foundation excavations (within the north-eastern corner) together with screening of stockpiled soil arisings on various parts of the site.

The locations of the exploratory holes are presented in Figure 2 appended. The trial pits were located to add further general coverage and to target area around WS5, WS6 and WS7 (ref GIP Limited DNB23795 Rev 1 June 2017).

5. Encountered Conditions

The ground conditions encountered in the trial pits were consistent with those anticipated from the desk study and previous investigation and comprised a capping of Made Ground overlying Head Deposits and the White Chalk Sub-Group.

Made Ground was found at each location at depths between 0.4mbgl (TP6) and >2.0mbgl (TP2) and generally comprised a melange of brown and dark grey brown silty sand, with various inclusions of brick, concrete, metal fragments clinker and rare ash. Head Deposits, comprising orange brown clayey sand and sandy clay was found below the Made Ground in TP3, TP6 and TP9. The White Chalk sub-group was found in each pit with the exception of TP2 and TP3 and generally comprised off-white to white strucureless CHALK. In TP2 and TP3, the trial pits were terminated prematurely due to access and health and safety issues.

6. Soil Contamination

Soil samples for laboratory analyses were taken at regular intervals and placed into plastic containers for general inorganic analysis and into amber jars for organic analysis. Samples were stored in temperature controlled conditions from sampling until receipt at the laboratory from which time sample preparation and storage was determined by testing requirements and in line with the laboratory's protocols.

Based on a visual assessment of the soils encountered, in conjunction with the known site history, proposed development and results of previous investigation, it was considered that the risk from any potentially contaminated soils at shallow depth was of a low to medium order. On this basis, and given the sensitivity of the proposed development, a further fifteen soil samples were submitted to a UKAS accredited laboratory for general chemical screening including common zootoxic and phytotoxic elements, speciated PAHs and asbestos screening. A single sample was submitted for VOC and SVOC testing, based on slight olfactory evidence of the presence of hydrocarbons.

Field testing for the presence of VOC's was undertaken on samples at 0.5m intervals in each of the Trial Pits or where there was olfactory evidence of the presence of hydrocarbon contamination.

The tests were carried out using a calibrated PID, the calibration certificate is appended. Each test was carried out in accordance with the following documents.-

CIRIA 682 The VOC Handbook
BS8576 2018
BS10175 2011 + A1 2013

In summary the following procedure was followed:-

1 A core sample was removed from the trial pit spoil and the spoil logged based on soil type and its depth also logged. Logging was undertaken by the second engineer to avoid significant time lapse which could cause sample degredation.
2 The sample was split into two, and each half of the sample was placed into a separate sample container.
3 The first sample container (a polythene bag) was partly filled and sealed to include a small headspace (air pocket) overlying the sample, and broken up gently within the container, by shaking. The sample was kept out of direct sunlight.
4 The second sample container (Jar) was sealed with minimal headspace present, and placed into a coolbox.
5 An appropriate bulb was fitted to the PID (depending on the VOCs likely to be present), and the PID is calibrated.
6 After between 10 and 15 minutes, a small hole was made in the top of the first sample container, and a reading of the headspace taken by inserting the PID tube through the hole.
7 The method was repeated for each sample at designated intervals throughout the trial pit or where olfactory evidence prompts additional testing
8 The second sample containers were sent for laboratory analysis, depending on the results of the PID screening, site observations.

7. Human Health Risk

The results of the laboratory chemical analysis indicate the concentrations are all below the generic assessment criteria for commercial usage and as such it is concluded that the results of the testing, in conjunction with the results of the previous investigation, remedial works for the protection of the end user is not required and further assessments are not considered necessary.

In respect of field tests for VOC's, all tests recorded zero VOC concentrations with the exception of the sample from TP2 at 0.2m which indicated a concentration of 10.0ppm (qualitatively assessed as very low).

Additional VOC screening was undertaken on open trenches within the north-east of the site and within random samples from stockpiled arisings around the site and these also returned results indicating zero concentrations of VOC's.

All samples submitted for asbestos screens were returned with no asbestos fibres identified with the exception of the sample from TP1 at 0.20m (amosite(fibre bundle). It is noted that no asbestos was found within the samples submitted for the original ground investigation.

It is noted that TP1 was located in an area proposed to be covered in tarmac hardstanding for the construction of a parking area. Under such circumstances, the source-pathway-receptor linkage will be severed and no specific remedial works will be required. However, if it is planned to remove or disturb these soils as part of the construction process, it is recommended that further investigation is undertaken in this area to re-assess the risk, in relation to human health and also to waste classification, if these soils are to be taken off site.

8. Soil Contamination vs. Building Materials

The current guidance on selection of materials for water supply pipes to be laid in contaminated land is contained in UK Water Industry Research's (UKWIR) report reference 10/WM/03/21 (re-issued 2010). However, the guidance is not mandatory and there have been concerns raised by various industry technical associations regarding the document and the methodologies proposed. Although there are concerns regarding the document, in lieu of any further guidance in the first instance the results of this investigation have been compared with the proposed thresholds published in UKWIR Table 3.1. It is understood that barrier pipe is to be supplied to all units.

As a matter of good practice, and to maximise the protection to utilities, it is recommended that clean, granular backfill is used in service runs and that marker tapes are used for all buried services.

9. Risk To Controlled Waters

Leachate tests (11 no) were carried out on both Made Ground and natural soils to assess the potential risk to controlled waters. Controlled waters identified as part of the PRA by others included the Principal aquifer within the White Chalk Sub-Group, together with nearby surface water features. Samples tested are listed below in the following table.

Trial Pit	Depth (mbgl)	Soil Type
1	0.5	Made Ground
1	1.2	Natural/Chalk
2	2.0	Made Ground
3	1.8	Natural/Head
5	1.6	Natural/Chalk
6	0.3	Made Ground
6	1.6	Natural/chalk
8	1.0	Natural/chalk
9	2.6	Natural/chalk
10	1.0	Made Ground
10	1.6	Natural/chalk

In the first instance, the results were compared with the Drinking Water Standards within 'The Water Supply (Water Quality) Regulations 2016'. Comparison with the Drinking Water Standards (DWS) is considered highly conservative as the compliance point for the DWS is the consumer's tap i.e. after any water treatment to remove contaminants. The results of the soil tests indicated no concentrations of concern in respect to hydrocarbon contamination. In addition, whilst the leachate tests indicated marginally elevated PAH concentrations when comparing the results to the very conservative drinking water standards, the fact that groundwater on the site is in excess of 20m in depth (ref previous investigation DNB23795 Rev 1 June 2017) and that the site is effectively to be completely hard surfaced, thus negating leaching potential, it is considered that the development will pose a very low risk to controlled waters. Therefore, no further assessment is required in this respect.

We trust that we have interpreted your instructions correctly, and please do not hesitate to contact us should you have any queries.

Yours sincerely,
For and on Behalf of GESL



GLYN EVANS B.Sc., MSc., P.G.Dip.,FGS.,MIEnvSc
Managing Director

Encs - Figure 1 – Site Location Plan
Figure 2 – Site Investigation Plan
Engineer's Logs
Geochemical Laboratory Test Results
PID Calibration Certificate

ace consultancy engineering business environment
CL:AIRE CONTAMINATED LAND: APPLICATIONS IN REAL ENVIRONMENTS
AGS Association of Geotechnical & Geoenvironmental Specialists
smas worksafe consultant as recognised by SSIP SAFETY SCHEMES IN PROCUREMENT
CHAS CONTRACTORS HEALTH & SAFETY ASSESSMENT SCHEME Accredited Contractor www.chas.gov.uk
constructionline UK REGISTER OF PRE-QUALIFIED CONSTRUCTION SERVICES
UVDB Verify Verified
Link-up Registered
iema Institute of Environmental Management & Assessment
CQMS Safety Scheme
THE ENVIRONMENTAL INDUSTRIES COMMISSION



Project:	Avenue 1, Letchworth			**Title**	Site Location
Client:	Ashe Construction			**Geo-Environmental Services Ltd** **Unit 7 Danworth Farm, Cuckfield Road** **Hurstpierpoint, West Sussex BN6 9GL** **+44(0)1273 832972 www.gesl.net**	Geo-Environmental
Ref No:	GE17249	**Revision:**	0		
Drawn:	GE	**Date:**	01/05/2018		
Figure:	1	**Scale:**			



Project:	Avenue 1, Letchworth			**Title**	Additional Trial Pit Locations
Client:	Ashe Construction			**Geo-Environmental Services Ltd** **Unit 7 Danworth Farm, Cuckfield Road** **Hurstpierpoint, West Sussex BN6 9GL** **+44(0)1273 832972 www.gesl.net**	Geo-Environmental
Ref No:	GE17249	**Revision:**	0		
Drawn:	GE	**Date:**			
Figure:	2	**Scale:**	Not To Scale		

Geo-Environmental
Unit 7, Danworth Farm
Hurstpierpoint
BN6 9GL
www.gesl.net

Trial Pit Log

TrialPit No: TP1
Sheet 1 of 1

Project Name:	Avenue One, Letchworth	Project No. GE17249	Co-ords: 523218.00 - 232682.00 Level:	Date 24/04/2018
Location:	Avenue One, Letchworth SG6 2HU	Dimensions (m): Depth 1.20	2.00 × 1.00	Scale 1:25
Client:	Ashe Construction			Logged DW

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20 0.20	ES PID	PID=10.0	0.15			Brown clayey sandy gravel. Gravel is demolition rubble comprising brick, concrete and type 2 material
	0.50 0.50	ES PID	PID=0.0				Dark brown and black slightly clayey slightly silty gravelly sand. Gravel is brick, concrete, clinker, ash and rare wood and metal. Slight hydrocarbon odour at 0.2m bgl
	1.20 1.20	ES PID	PID=0.0	1.10 1.20			Structureless CHALK comprising cream and light brown slightly clayey sandy gravelly SILT. Gravel is sub angular to sub rounded fine very weak low density white chalk with occasional black spots End of Pit at 1.20m

Water Strikes

Depth Strike	Rose to (mbgl)

Remarks

Stability: Instability within Made Ground

AGS

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Unit 7, Danworth Farm
Hurstpierpoint
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Trial Pit Log

TrialPit No: TP2
Sheet 1 of 1

Project Name:	Avenue One, Letchworth	Project No. GE17249	Co-ords: 523174.00 - 232707.00 Level:
Location:	Avenue One, Letchworth SG6 2HU	Dimensions (m): Depth 2.00	2.00 × 1.00
Client:	Ashe Construction		

Date: 24/04/2018
Scale: 1:25
Logged: DW

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							Brown clayey sandy gravel. Gravel is demolition rubble comprising brick, concrete and type 2 material
				0.70			Dark brown slightly gravelly silty sand. Gravel is brick and concrete with some metal
				1.20			Dark brown and black slightly clayey slightly silty gravelly sand. Gravel is brick, concrete, clinker, ash and rare wood and metal.
	1.50 1.50	ES PID	PID=0.0				
	2.00 2.00	ES PID	PID=0.0	2.00			End of Pit at 2.00m

1
2
3
4
5

Water Strikes

Depth Strike	Rose to (mbgl)

Remarks: Chalk not encountered due to trial pit depth restriction because of access and possible buried services

Stability: Instability within Made Ground

AGS

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Unit 7, Danworth Farm
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Trial Pit Log

TrialPit No: TP3
Sheet 1 of 1

Project Name:	Avenue One, Letchworth	Project No. GE17249	Co-ords: 523136.00 - 232660.00 Level:
Location:	Avenue One, Letchworth SG6 2HU	Dimensions (m): Depth 1.80	2.00 × 1.00
Client:	Ashe Construction		

Date: 24/04/2018
Scale: 1:25
Logged: DW

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							Brown clayey sandy gravel. Gravel is demolition rubble comprising brick, concrete and type 2 material
				0.70			
	1.00 1.00	ES PID	PID=0.0				Dark brown and black slightly clayey slightly silty gravelly sand. Gravel is brick, concrete, clinker, ash, pulverised fuel ash, plastic and cardboard.
				1.70			Orangeish brown silty sandy CLAY
	1.80 1.80	ES PID	PID=0.0	1.80			End of Pit at 1.80m

1
2
3
4
5

Water Strikes	
Depth Strike	Rose to (mbgl)

Remarks

Stability: Instability within made Ground

AGS

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Unit 7, Danworth Farm
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Trial Pit Log

TrialPit No: TP5
Sheet 1 of 1

Project Name:	Avenue One, Letchworth	Project No. GE17249	Co-ords: 523160.00 - 232635.00 Level:
Date	24/04/2018		
Location:	Avenue One, Letchworth SG6 2HU	Dimensions (m):	2.00 x 1.00
Scale	1:25		
Client:	Ashe Construction	Depth	1.70
Logged	DW		

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							Brown slightly silty clayey gravelly sand. Gravel is brick, concrete, chalk, tile, plastic and fabric.
				0.30			Orangish brown silty sandy clay (reworked)
	1.00 1.00	ES PID	PID=0.0				
				1.50			Structureless CHALK comprising cream and light brown slightly clayey sandy gravelly SILT. Gravel is sub angular to sub rounded fine very weak low density white chalk with occasional black spots
	1.60 1.60	ES PID	PID=0.0	1.70			End of Pit at 1.70m

Water Strikes

Depth Strike	Rose to (mbgl)

Remarks

Stability: Instability within Made Ground

AGS

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Unit 7, Danworth Farm
Hurstpierpoint
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Trial Pit Log

TrialPit No: TP6
Sheet 1 of 1

Project Name: Avenue One, Letchworth	Project No. GE17249	Co-ords: 523186.00 - 232604.00 Level:	Date 24/04/2018
Location: Avenue One, Letchworth SG6 2HU		Dimensions (m): 2.00 × 1.00 Depth 1.20	Scale 1:25
Client: Ashe Construction			Logged DW

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							Brown clayey sandy gravel. Gravel is demolition rubble comprising brick, concrete and some flint
	0.35 0.35	ES PID	PID=0.0	0.30 0.40			Dark brown and black slightly clayey slightly silty gravelly sand. Gravel is brick, concrete, clinker, and rare wood and metal. Dark brown slightly silty clayey SAND
	1.00 1.00	ES PID	PID=0.0	0.80			Structureless CHALK comprising cream and light brown slightly clayey sandy gravelly SILT. Gravel is sub angular to sub rounded fine very weak low density white chalk with occasional black spots
				1.20			End of Pit at 1.20m

1
2
3
4
5

Water Strikes

Depth Strike	Rose to (mbgl)

Remarks

Stability: Instability within Made Ground

AGS

Geo-Environmental
Unit 7, Danworth Farm
Hurstpierpoint
BN6 9GL
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Trial Pit Log

TrialPit No: TP8
Sheet 1 of 1

Project Name:	Avenue One, Letchworth	Project No. GE17249	Co-ords: 523231.00 - 232637.00 Level:
Location:	Avenue One, Letchworth SG6 2HU	Dimensions (m):	Depth 1.50, 2.00 × 1.00
Client:	Ashe Construction		

Date: 24/04/2018
Scale: 1:25
Logged: DW

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							Brown clayey sandy gravel. Gravel is demolition rubble comprising brick, concrete and some flint and rare metal
	0.30 0.30	ES PID	PID=0.0	0.25			Dark brown and black slightly clayey slightly silty gravelly sand. Gravel is brick, concrete, clinker, and rare wood and metal.
	0.60 0.60	ES PID	PID=0.0	0.50			Structureless CHALK comprising cream and light brown slightly clayey sandy gravelly SILT. Gravel is sub angular to sub rounded fine very weak low density white chalk with occasional black spots
	1.00 1.00	ES PID	PID=0.0				
				1.50			End of Pit at 1.50m

1
2
3
4
5

Water Strikes	
Depth Strike	Rose to (mbgl)

Remarks

Stability: Instability within Made Ground

AGS

Geo-Environmental
Unit 7, Danworth Farm
Hurstpierpoint
BN6 9GL
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Trial Pit Log

TrialPit No
TP9
Sheet 1 of 1

Project Name: Avenue One, Letchworth	Project No. GE17249	Co-ords: 523186.00 - 232668.00 Level:	Date
Location: Avenue One, Letchworth SG6 2HU		Dimensions (m): Depth	Scale 1:25
Client: Ashe Construction			Logged

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.50 0.50	ES PID	PID=0.0				Brown clayey gravelly sand. Gravel is brick, concrete and rare plastic.
				1.10			Orangeish brown slightly gravelly clayey silty SAND. Gravel is subangular chalk
	1.50 1.50	ES PID	PID=0.0				
				2.50			Structureless CHALK comprising cream and light brown slightly clayey sandy gravelly SILT. Gravel is sub angular to sub rounded fine very weak low density white chalk with occasional black spots
	2.60 2.60	ES PID	PID=0.0	2.80			

1
2
3
4
5

Water Strikes	
Depth Strike	Rose to (mbgl)

Remarks

Stability

AGS

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Unit 7, Danworth Farm
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Trial Pit Log

TrialPit No: TP10
Sheet 1 of 1

Project Name: Avenue One, Letchworth	Project No. GE17249	Co-ords: 523218.00 - 232719.00 Level:	Date 24/04/2018
Location: Avenue One, Letchworth SG6 2HU		Dimensions (m): Depth 2.00, 1.00 x 2.00	Scale 1:25
Client: Ashe Construction			Logged DW

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
							Brown clayey sandy gravel. Gravel is demolition rubble comprising brick, concrete and some flint and rare metal
				0.20			Dark brown and black slightly clayey slightly silty gravelly sand. Gravel is brick, concrete, clinker, and rare wood and metal.
	0.50 0.50	ES PID	PID=0.0				
	1.00 1.00	ES PID	PID=0.0				
				1.50			Structureless CHALK comprising cream and light brown slightly clayey sandy gravelly SILT. Gravel is sub angular to sub rounded fine very weak low density white chalk with occasional black spots
	1.60 1.60	ES PID	PID=0.0				
				2.00			End of Pit at 2.00m

Water Strikes	
Depth Strike	Rose to (mbgl)

Remarks

Stability: Instability within Made Ground

AGS

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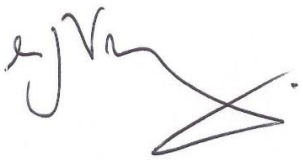
THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number:	18-17339
Issue:	1
Date of Issue:	08/05/2018
Contact:	Glyn Evans
Customer Details:	GESL Unit 7 Danworth Farm Hurstpierpoint West Sussex BN6 9GL
Quotation No:	Q14-00021
Order No:	Not Supplied
Customer Reference:	GE17249
Date Received:	25/04/2018
Date Approved:	08/05/2018
Details:	Letchworth
Approved by:	

Mike Varley, Technical Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683)

Sample Summary

Report No.: 18-17339

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
134605	TP1 0.20	24/04/2018	01/05/2018	Sandy silty loam	
134606	TP1 0.50	24/04/2018	01/05/2018	Sandy silty loam	
134607	TP1 1.20	24/04/2018	01/05/2018	Silty loam + chalk	
134608	TP2 1.50	24/04/2018	01/05/2018	Silty loam	
134609	TP2 2.00	24/04/2018	01/05/2018	Sandy silty loam	
134610	TP3 1.00	24/04/2018	01/05/2018	Sandy silty loam	
134611	TP3 1.80	24/04/2018	01/05/2018	Silty loam	
134612	TP5 1.60	24/04/2018	01/05/2018	chalk	
134613	TP6 0.30	24/04/2018	01/05/2018	Silty loam	
134614	TP6 1.00	24/04/2018	01/05/2018	chalk	
134615	TP8 1.00	24/04/2018	01/05/2018	chalk	
134616	TP9 0.50	24/04/2018	01/05/2018	Silty loam	
134617	TP9 2.60	24/04/2018	01/05/2018	chalk	
134618	TP10 1.00	24/04/2018	01/05/2018	Silty loam	
134619	TP10 1.60	24/04/2018	01/05/2018	chalk	
134620	TP5 1.00	24/04/2018	01/05/2018		
134621	TP8 0.30	24/04/2018	01/05/2018		
134622	TP8 0.60	24/04/2018	01/05/2018		
134623	TP9 1.50	24/04/2018	01/05/2018		
134624	TP10 0.50	24/04/2018	01/05/2018		

Results Summary

Report No.: 18-17339

	ELAB Reference	134605	134606	134607	134608	134609	134610
	Customer Reference						
	Sample ID						
	Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sample Location	TP1	TP1	TP1	TP2	TP2	TP3
	Sample Depth (m)	0.20	0.50	1.20	1.50	2.00	1.00
	Sampling Date	24/04/2018	24/04/2018	24/04/2018	24/04/2018	24/04/2018	24/04/2018
Determinand	**Codes** / **Units** / **LOD**						
Metals							
Arsenic	M / mg/kg / 1	29.0	23.9	^ 8.1	17.3	19.0	28.0
Barium	U / mg/kg / 10	241	256	65.1	158	175	329
Beryllium	U / mg/kg / 1	1.1	1.5	< 1.0	< 1.0	1.0	1.1
Cadmium	M / mg/kg / 0.5	1.6	1.0	^ < 0.5	0.6	0.9	1.8
Chromium	M / mg/kg / 5	128	94.1	^ 28.4	72.5	70.2	212
Copper	M / mg/kg / 5	219	145	^ 13.9	76.6	92.5	245
Lead	M / mg/kg / 5	117	104	^ 13.6	56.0	61.6	140
Mercury	M / mg/kg / 0.5	< 0.5	< 0.5	^ < 0.5	< 0.5	< 0.5	0.6
Nickel	M / mg/kg / 5	169	100	^ 22.9	74.5	54.0	112
Selenium	M / mg/kg / 1	< 1.0	< 1.0	^ < 1.0	< 1.0	< 1.0	< 1.0
Vanadium	M / mg/kg / 5	45.2	42.3	^ 34.8	26.9	30.0	44.0
Zinc	M / mg/kg / 5	360	240	^ 49.7	120	139	285
Anions							
Water Soluble Chloride	M / mg/kg / 40	< 40	< 40	^ < 40	< 40	< 40	< 40
Water Soluble Sulphate	M / g/l / 0.02	0.14	0.36	^ 0.02	< 0.02	0.06	0.16
Inorganics							
Elemental Sulphur	M / mg/kg / 20	26	29	^ < 20	< 20	33	< 20
Hexavalent Chromium	N / mg/kg / 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Total Sulphide	N / mg/kg / 2	< 2	< 2	< 2	< 2	< 2	< 2
Total Cyanide	M / mg/kg / 1	< 1.0	< 1.0	^ < 1.0	< 1.0	< 1.0	< 1.0
Acid Soluble Sulphate (SO4)	U / % / 0.02	0.09	0.13	0.06	0.04	0.05	0.15
Water Soluble Boron	N / mg/kg / 0.5	2.0	1.6	< 0.5	< 0.5	1.0	3.1
Miscellaneous							
pH	M / pH units / 0.1	9.6	9.1	^ 7.7	8.8	8.8	10.1
Total Organic Carbon	N / % / 0.01	0.84	0.49	0.23	0.32	0.35	0.81
Phenols							
Total Phenols	N / mg/kg / 6	< 6	< 6	< 6	< 6	< 6	< 6
Polyaromatic hydrocarbons							
Naphthalene	M / mg/kg / 0.1	0.2	0.2	^ < 0.1	< 0.1	< 0.1	0.1
Acenaphthylene	M / mg/kg / 0.1	< 0.1	0.3	^ < 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	M / mg/kg / 0.1	0.2	0.1	^ < 0.1	< 0.1	< 0.1	0.2
Fluorene	M / mg/kg / 0.1	0.2	< 0.1	^ < 0.1	< 0.1	< 0.1	0.1
Phenanthrene	M / mg/kg / 0.1	0.6	0.5	^ < 0.1	< 0.1	0.2	0.6
Anthracene	M / mg/kg / 0.1	0.1	0.2	^ < 0.1	< 0.1	< 0.1	0.2
Fluoranthene	M / mg/kg / 0.1	0.9	2.1	^ < 0.1	< 0.1	0.2	0.7
Pyrene	M / mg/kg / 0.1	0.9	1.8	^ < 0.1	< 0.1	0.2	0.7
Benzo(a)anthracene	M / mg/kg / 0.1	0.4	0.9	^ < 0.1	< 0.1	< 0.1	0.3
Chrysene	M / mg/kg / 0.1	0.5	1.0	^ < 0.1	< 0.1	0.1	0.4
Benzo (b) fluoranthene	M / mg/kg / 0.1	0.8	1.0	^ < 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	M / mg/kg / 0.1	0.5	1.1	^ < 0.1	< 0.1	< 0.1	< 0.1
Benzo (a) pyrene	M / mg/kg / 0.1	0.4	0.9	^ < 0.1	< 0.1	< 0.1	0.2
Indeno (1,2,3-cd) pyrene	M / mg/kg / 0.1	0.3	0.6	^ < 0.1	< 0.1	< 0.1	0.2
Dibenzo(a,h)anthracene	M / mg/kg / 0.1	< 0.1	0.1	^ < 0.1	< 0.1	< 0.1	0.1
Benzo[g,h,i]perylene	M / mg/kg / 0.1	0.4	0.7	^ < 0.1	< 0.1	< 0.1	0.4
Total PAH(16)	M / mg/kg / 0.4	6.7	11.7	^ < 0.4	< 0.4	0.9	4.2

Results Summary

Report No.: 18-17339

	ELAB Reference	134605	134606	134607	134608	134609	134610
	Customer Reference						
	Sample ID						
	Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sample Location	TP1	TP1	TP1	TP2	TP2	TP3
	Sample Depth (m)	0.20	0.50	1.20	1.50	2.00	1.00
	Sampling Date	24/04/2018	24/04/2018	24/04/2018	24/04/2018	24/04/2018	24/04/2018
Determinand	**Codes**	**Units**	**LOD**						
BTEX									
Benzene	M	ug/kg	10	< 10.0	< 10.0	^ < 10.0	< 10.0	< 10.0	< 10.0
Toluene	M	ug/kg	10	< 10.0	< 10.0	^ < 10.0	< 10.0	< 10.0	< 10.0
Ethylbenzene	M	ug/kg	10	< 10.0	< 10.0	^ < 10.0	< 10.0	< 10.0	< 10.0
Xylenes	M	ug/kg	10	< 10.0	< 10.0	^ < 10.0	< 10.0	< 10.0	< 10.0
MTBE	N	ug/kg	10	< 10.0	n/t	n/t	< 10.0	< 10.0	n/t
TPH CWG									
>C5-C6 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C6-C8 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C10-C12 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C16-C21 Aliphatic	N	mg/kg	1	3.3	5.4	< 1.0	< 1.0	3.3	10.7
>C21-C35 Aliphatic	N	mg/kg	1	21.6	34.1	< 1.0	7.9	16.8	170
>C35-C40 Aliphatic	N	mg/kg	1	2.9	2.6	< 1.0	1.2	3.0	10.9
>C5-C7 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C7-C8 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C10-C12 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C16-C21 Aromatic	N	mg/kg	1	3.5	4.9	< 1.0	< 1.0	3.5	8.3
>C21-C35 Aromatic	N	mg/kg	1	24.4	33.6	< 1.0	8.8	19.7	135
>C35-C40 Aromatic	N	mg/kg	1	4.1	3.7	< 1.0	2.0	4.8	10.8
Total (>C5-C40) Ali/Aro	N	mg/kg	1	59.8	84.3	< 1.0	19.9	51.2	346

Results Summary

Report No.: 18-17339

			ELAB Reference	134611	134612	134613	134614	134615	134616
			Customer Reference						
			Sample ID						
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sample Location	TP3	TP5	TP6	TP6	TP8	TP9
			Sample Depth (m)	1.80	1.60	0.30	1.00	1.00	0.50
			Sampling Date	24/04/2018	24/04/2018	24/04/2018	24/04/2018	24/04/2018	24/04/2018
Determinand	**Codes**	**Units**	**LOD**						
Metals									
Arsenic	M	mg/kg	1	20.4	^ 3.9	25.2	^ 3.8	^ 3.6	15.4
Barium	U	mg/kg	10	146	36.5	255	99.3	29.4	119
Beryllium	U	mg/kg	1	1.7	< 1.0	< 1.0	< 1.0	< 1.0	1.1
Cadmium	M	mg/kg	0.5	< 0.5	^ < 0.5	1.4	^ < 0.5	^ < 0.5	< 0.5
Chromium	M	mg/kg	5	50.3	^ 11.0	138	^ 15.7	^ 7.7	44.5
Copper	M	mg/kg	5	26.7	^ 10.2	125	^ 14.5	^ 8.3	32.5
Lead	M	mg/kg	5	27.2	^ 5.9	113	^ 10.8	^ < 5.0	46.5
Mercury	M	mg/kg	0.5	< 0.5	^ < 0.5	< 0.5	^ < 0.5	^ < 0.5	< 0.5
Nickel	M	mg/kg	5	39.4	^ 10.9	85.1	^ 12.2	^ 7.7	30.7
Selenium	M	mg/kg	1	1.3	^ < 1.0	< 1.0	^ < 1.0	^ < 1.0	< 1.0
Vanadium	M	mg/kg	5	66.9	^ 11.7	44.6	^ 11.1	^ 8.2	56.2
Zinc	M	mg/kg	5	114	^ 28.9	301	^ 40.4	^ 35.8	129
Anions									
Water Soluble Chloride	M	mg/kg	40	< 40	^ < 40	< 40	^ < 40	^ < 40	< 40
Water Soluble Sulphate	M	g/l	0.02	0.04	^ 0.04	0.11	^ 0.13	^ 0.04	0.11
Inorganics									
Elemental Sulphur	M	mg/kg	20	< 20	^ < 20	< 20	^ < 20	^ < 20	< 20
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Total Sulphide	N	mg/kg	2	< 2	< 2	< 2	< 2	< 2	< 2
Total Cyanide	M	mg/kg	1	< 1.0	^ < 1.0	< 1.0	^ < 1.0	^ < 1.0	< 1.0
Acid Soluble Sulphate (SO4)	U	%	0.02	0.05	0.10	0.10	0.11	0.10	0.10
Water Soluble Boron	N	mg/kg	0.5	< 0.5	< 0.5	0.5	< 0.5	< 0.5	< 0.5
Miscellaneous									
pH	M	pH units	0.1	8.9	^ 8.7	9.7	^ 9.6	^ 8.8	8.4
Total Organic Carbon	N	%	0.01	0.29	0.11	0.32	0.03	0.14	0.85
Phenols									
Total Phenols	N	mg/kg	6	< 6	< 6	< 6	< 6	< 6	< 6
Polyaromatic hydrocarbons									
Naphthalene	M	mg/kg	0.1	< 0.1	^ < 0.1	< 0.1	^ < 0.1	^ < 0.1	< 0.1
Acenaphthylene	M	mg/kg	0.1	< 0.1	^ < 0.1	< 0.1	^ < 0.1	^ < 0.1	< 0.1
Acenaphthene	M	mg/kg	0.1	< 0.1	^ < 0.1	< 0.1	^ < 0.1	^ < 0.1	< 0.1
Fluorene	M	mg/kg	0.1	< 0.1	^ < 0.1	< 0.1	^ < 0.1	^ < 0.1	< 0.1
Phenanthrene	M	mg/kg	0.1	< 0.1	^ < 0.1	< 0.1	^ < 0.1	^ < 0.1	< 0.1
Anthracene	M	mg/kg	0.1	< 0.1	^ < 0.1	< 0.1	^ < 0.1	^ < 0.1	< 0.1
Fluoranthene	M	mg/kg	0.1	< 0.1	^ 0.2	0.2	^ < 0.1	^ < 0.1	0.3
Pyrene	M	mg/kg	0.1	< 0.1	^ < 0.1	0.3	^ < 0.1	^ < 0.1	0.3
Benzo(a)anthracene	M	mg/kg	0.1	< 0.1	^ < 0.1	0.1	^ < 0.1	^ < 0.1	0.2
Chrysene	M	mg/kg	0.1	< 0.1	^ < 0.1	0.2	^ < 0.1	^ < 0.1	0.3
Benzo (b) fluoranthene	M	mg/kg	0.1	< 0.1	^ < 0.1	0.2	^ < 0.1	^ < 0.1	0.4
Benzo(k)fluoranthene	M	mg/kg	0.1	< 0.1	^ < 0.1	0.4	^ < 0.1	^ < 0.1	0.2
Benzo (a) pyrene	M	mg/kg	0.1	< 0.1	^ < 0.1	0.2	^ < 0.1	^ < 0.1	0.2
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.1	< 0.1	^ < 0.1	0.1	^ < 0.1	^ < 0.1	0.2
Dibenzo(a,h)anthracene	M	mg/kg	0.1	< 0.1	^ < 0.1	< 0.1	^ < 0.1	^ < 0.1	< 0.1
Benzo[g,h,i]perylene	M	mg/kg	0.1	< 0.1	^ < 0.1	0.2	^ < 0.1	^ < 0.1	0.2
Total PAH(16)	M	mg/kg	0.4	< 0.4	^ < 0.4	2.0	^ < 0.4	^ < 0.4	2.6

Results Summary

Report No.: 18-17339

	ELAB Reference	134611	134612	134613	134614	134615	134616
	Customer Reference						
	Sample ID						
	Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sample Location	TP3	TP5	TP6	TP6	TP8	TP9
	Sample Depth (m)	1.80	1.60	0.30	1.00	1.00	0.50
	Sampling Date	24/04/2018	24/04/2018	24/04/2018	24/04/2018	24/04/2018	24/04/2018
Determinand	**Codes** / **Units** / **LOD**						
BTEX							
Benzene	M / ug/kg / 10	< 10.0	^ < 10.0	< 10.0	^ < 10.0	^ < 10.0	< 10.0
Toluene	M / ug/kg / 10	< 10.0	^ < 10.0	< 10.0	^ < 10.0	^ < 10.0	< 10.0
Ethylbenzene	M / ug/kg / 10	< 10.0	^ < 10.0	< 10.0	^ < 10.0	^ < 10.0	< 10.0
Xylenes	M / ug/kg / 10	< 10.0	^ < 10.0	< 10.0	^ < 10.0	^ < 10.0	< 10.0
MTBE	N / ug/kg / 10	n/t	n/t	< 10.0	n/t	n/t	n/t
TPH CWG							
>C5-C6 Aliphatic	N / mg/kg / 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C6-C8 Aliphatic	N / mg/kg / 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aliphatic	N / mg/kg / 1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C10-C12 Aliphatic	N / mg/kg / 1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 Aliphatic	N / mg/kg / 1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C16-C21 Aliphatic	N / mg/kg / 1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.6
>C21-C35 Aliphatic	N / mg/kg / 1	< 1.0	< 1.0	8.9	< 1.0	< 1.0	33.6
>C35-C40 Aliphatic	N / mg/kg / 1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	5.6
>C5-C7 Aromatic	N / mg/kg / 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C7-C8 Aromatic	N / mg/kg / 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aromatic	N / mg/kg / 1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C10-C12 Aromatic	N / mg/kg / 1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 Aromatic	N / mg/kg / 1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C16-C21 Aromatic	N / mg/kg / 1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.4
>C21-C35 Aromatic	N / mg/kg / 1	< 1.0	< 1.0	5.5	< 1.0	< 1.0	36.3
>C35-C40 Aromatic	N / mg/kg / 1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	7.7
Total (>C5-C40) Ali/Aro	N / mg/kg / 1	< 1.0	< 1.0	14.4	< 1.0	< 1.0	86.2

Results Summary

Report No.: 18-17339

	ELAB Reference	134617	134618	134619
	Customer Reference			
	Sample ID			
	Sample Type	SOIL	SOIL	SOIL
	Sample Location	TP9	TP10	TP10
	Sample Depth (m)	2.60	1.00	1.60
	Sampling Date	24/04/2018	24/04/2018	24/04/2018
Determinand	**Codes** / **Units** / **LOD**			
Metals				
Arsenic	M / mg/kg / 1	^ 3.1	26.9	^ 6.3
Barium	U / mg/kg / 10	30.7	297	64.5
Beryllium	U / mg/kg / 1	< 1.0	1.4	< 1.0
Cadmium	M / mg/kg / 0.5	^ < 0.5	2.5	^ < 0.5
Chromium	M / mg/kg / 5	^ 10.8	237	^ 29.2
Copper	M / mg/kg / 5	^ 7.1	139	^ 15.3
Lead	M / mg/kg / 5	^ 5.8	164	^ 13.8
Mercury	M / mg/kg / 0.5	^ < 0.5	< 0.5	^ < 0.5
Nickel	M / mg/kg / 5	^ 8.8	96.3	^ 20.9
Selenium	M / mg/kg / 1	^ < 1.0	< 1.0	^ < 1.0
Vanadium	M / mg/kg / 5	^ 12.6	47.7	^ 29.7
Zinc	M / mg/kg / 5	^ 27.5	540	^ 55.5
Anions				
Water Soluble Chloride	M / mg/kg / 40	^ < 40	< 40	^ < 40
Water Soluble Sulphate	M / g/l / 0.02	^ < 0.02	0.13	^ 0.10
Inorganics				
Elemental Sulphur	M / mg/kg / 20	^ < 20	< 20	^ < 20
Hexavalent Chromium	N / mg/kg / 0.8	< 0.8	< 0.8	< 0.8
Total Sulphide	N / mg/kg / 2	< 2	< 2	< 2
Total Cyanide	M / mg/kg / 1	^ < 1.0	< 1.0	^ < 1.0
Acid Soluble Sulphate (SO4)	U / % / 0.02	0.08	0.14	0.10
Water Soluble Boron	N / mg/kg / 0.5	< 0.5	1.4	< 0.5
Miscellaneous				
pH	M / pH units / 0.1	^ 8.8	9.1	^ 8.5
Total Organic Carbon	N / % / 0.01	0.18	0.47	0.21
Phenols				
Total Phenols	N / mg/kg / 6	< 6	< 6	< 6
Polyaromatic hydrocarbons				
Naphthalene	M / mg/kg / 0.1	^ < 0.1	< 0.1	^ < 0.1
Acenaphthylene	M / mg/kg / 0.1	^ < 0.1	< 0.1	^ < 0.1
Acenaphthene	M / mg/kg / 0.1	^ < 0.1	< 0.1	^ < 0.1
Fluorene	M / mg/kg / 0.1	^ < 0.1	< 0.1	^ < 0.1
Phenanthrene	M / mg/kg / 0.1	^ < 0.1	< 0.1	^ < 0.1
Anthracene	M / mg/kg / 0.1	^ < 0.1	< 0.1	^ < 0.1
Fluoranthene	M / mg/kg / 0.1	^ < 0.1	0.3	^ 0.1
Pyrene	M / mg/kg / 0.1	^ < 0.1	0.3	^ < 0.1
Benzo(a)anthracene	M / mg/kg / 0.1	^ < 0.1	0.2	^ < 0.1
Chrysene	M / mg/kg / 0.1	^ < 0.1	0.2	^ < 0.1
Benzo (b) fluoranthene	M / mg/kg / 0.1	^ < 0.1	0.5	^ < 0.1
Benzo(k)fluoranthene	M / mg/kg / 0.1	^ < 0.1	0.2	^ < 0.1
Benzo (a) pyrene	M / mg/kg / 0.1	^ < 0.1	0.2	^ < 0.1
Indeno (1,2,3-cd) pyrene	M / mg/kg / 0.1	^ < 0.1	0.2	^ < 0.1
Dibenzo(a,h)anthracene	M / mg/kg / 0.1	^ < 0.1	< 0.1	^ < 0.1
Benzo[g,h,i]perylene	M / mg/kg / 0.1	^ < 0.1	0.4	^ < 0.1
Total PAH(16)	M / mg/kg / 0.4	^ < 0.4	2.7	^ < 0.4

Results Summary

Report No.: 18-17339

			ELAB Reference	134617	134618	134619
			Customer Reference			
			Sample ID			
			Sample Type	SOIL	SOIL	SOIL
			Sample Location	TP9	TP10	TP10
			Sample Depth (m)	2.60	1.00	1.60
			Sampling Date	24/04/2018	24/04/2018	24/04/2018
Determinand	**Codes**	**Units**	**LOD**			
BTEX						
Benzene	M	ug/kg	10	^ < 10.0	< 10.0	^ < 10.0
Toluene	M	ug/kg	10	^ < 10.0	< 10.0	^ < 10.0
Ethylbenzene	M	ug/kg	10	^ < 10.0	< 10.0	^ < 10.0
Xylenes	M	ug/kg	10	^ < 10.0	< 10.0	^ < 10.0
MTBE	N	ug/kg	10	n/t	< 10.0	n/t
TPH CWG						
>C5-C6 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
>C6-C8 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C10-C12 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C12-C16 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C16-C21 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C21-C35 Aliphatic	N	mg/kg	1	< 1.0	14.0	< 1.0
>C35-C40 Aliphatic	N	mg/kg	1	< 1.0	1.7	< 1.0
>C5-C7 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
>C7-C8 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C10-C12 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C12-C16 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C16-C21 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0
>C21-C35 Aromatic	N	mg/kg	1	< 1.0	11.8	< 1.0
>C35-C40 Aromatic	N	mg/kg	1	< 1.0	1.8	< 1.0
Total (>C5-C40) Ali/Aro	N	mg/kg	1	< 1.0	29.2	< 1.0

Results Summary

Report No.: 18-17339

ELAB Reference	134605
Customer Reference	
Sample ID	
Sample Type	SOIL
Sample Location	TP1
Sample Depth (m)	0.20
Sampling Date	24/04/2018

Determinand	Codes	Units	LOD	
VOC				
Heptane	N	ug/kg	10	< 10.0
Octane	N	ug/kg	10	< 10.0
Nonane	N	ug/kg	10	< 10.0
Benzene	M	ug/kg	10	< 10.0
Toluene	M	ug/kg	10	< 10.0
Ethylbenzene	M	ug/kg	10	< 10.0
m+p-xylene	M	ug/kg	10	< 10.0
o-xylene	M	ug/kg	10	< 10.0
cis-1,2-dichloroethene	M	ug/kg	10	< 10.0
1,1-Dichloroethane	M	ug/kg	10	< 10.0
Chloroform	M	ug/kg	10	< 10.0
Tetrachloromethane	M	ug/kg	10	< 10.0
1,1,1-Trichloroethane	M	ug/kg	10	< 10.0
Trichloroethylene	M	ug/kg	10	< 10.0
Tetrachloroethylene	M	ug/kg	10	< 10.0
1,1,1,2-Tetrachloroethane	M	ug/kg	10	< 10.0
1,1,2,2-Tetrachloroetha	M	ug/kg	10	< 10.0
Chlorobenzene	M	ug/kg	10	< 10.0
Bromobenzene	M	ug/kg	10	< 10.0
Bromodichloromethane	M	ug/kg	10	< 10.0
Methylethylbenzene	M	ug/kg	10	< 10.0
1,1-Dichloro-1-propene	M	ug/kg	10	< 10.0
Trans - 1-2 -dichloroethylene	N	ug/kg	10	< 10.0
2,2-Dichloropropane	N	ug/kg	10	< 10.0
Bromochloromethane	N	ug/kg	10	< 10.0
1,2-Dichloroethane	N	ug/kg	10	< 10.0
Dibromomethane	M	ug/kg	10	< 10.0
1,2-Dichloropropane	M	ug/kg	10	< 10.0
cis-1,3-Dichloro-1-propene	M	ug/kg	10	< 10.0
trans-1,3-Dichloro-1-propene	M	ug/kg	10	< 10.0
1,1,2-Trichloroethane	N	ug/kg	10	< 10.0
Dibromochloromethane	N	ug/kg	10	< 10.0
1,3-Dichloropropane	N	ug/kg	10	< 10.0
1,2-dibromoethane	M	ug/kg	10	< 10.0
Styrene	N	ug/kg	10	< 10.0
Propylbenzene	N	ug/kg	10	< 10.0
2-Chlorotoluene	N	ug/kg	10	< 10.0
1,2,4-Trimethylbenzene	N	ug/kg	10	< 10.0
4-Chlorotoluene	N	ug/kg	10	< 10.0
t-butylbenzene	N	ug/kg	10	< 10.0
1,3,5-Trimethylbenzene	N	ug/kg	10	< 10.0
1-methylpropylbenzene	N	ug/kg	10	< 10.0
o-cymene	N	ug/kg	10	< 10.0
1,3-Dichlorobenzene	N	ug/kg	10	< 10.0
Butylbenzene	N	ug/kg	10	< 10.0
1,2-Dibromo-3-chloropropane	N	ug/kg	10	< 10.0
Hexachlorobutadiene	N	ug/kg	10	< 10.0
1-2-3 - Trichlorobenzene	N	ug/kg	10	< 10.0
Naphthalene	N	ug/kg	10	< 10.0
1-2-4 - Trichlorobenzene	N	ug/kg	10	< 10.0
1,4-Dichlorobenzene	N	ug/kg	10	< 10.0
1,2-Dichlorobenzene	N	ug/kg	10	< 10.0
Bromoform	N	ug/kg	10	< 10.0

Tests marked N are not UKAS accredited.

Results Summary

Report No.: 18-17339

ELAB Reference	134605
Customer Reference	
Sample ID	
Sample Type	SOIL
Sample Location	TP1
Sample Depth (m)	0.20
Sampling Date	24/04/2018

Determinand	Codes	Units	LOD	
SVOC				
Phenol	N	mg/kg	0.01	0.03
Aniline	N	mg/kg	0.01	< 0.01
Bis(2-chloroethyl)ether	N	mg/kg	0.01	< 0.01
2-Chlorophenol	N	mg/kg	0.01	< 0.01
1,3-Dichlorobenzene	N	mg/kg	0.01	< 0.01
1,4-Dichlorobenzene	N	mg/kg	0.01	< 0.01
Benzyl Alcohol	N	mg/kg	0.01	< 0.01
1,2-Dichlorobenzene	N	mg/kg	0.01	< 0.01
2-Methylphenol	N	mg/kg	0.01	0.02
Bis(2-chloroisopropyl)ether	N	mg/kg	0.01	< 0.01
3 and 4-methylphenol	N	mg/kg	0.01	0.03
N-Nitrosodi-n-propylamine	N	mg/kg	0.01	< 0.01
Hexachloroethane	N	mg/kg	0.01	< 0.01
Nitrobenzene	N	mg/kg	0.01	< 0.01
Isophorone	N	mg/kg	0.01	< 0.01
2-Nitrophenol	N	mg/kg	0.01	< 0.01
2,4-Dimethylphenol	N	mg/kg	0.01	0.03
Bis(2-chloroethoxy)methane	N	mg/kg	0.01	< 0.01
2,4-Dichlorophenol	N	mg/kg	0.01	< 0.01
1,3,5-Trichlorobenzene	N	mg/kg	0.01	< 0.01
Naphthalene	N	mg/kg	0.01	0.32
3-Chloroaniline	N	mg/kg	0.01	< 0.01
Hexachloro-1,3-butadiene	N	mg/kg	0.01	< 0.01
4-Chloro-3-methylphenol	N	mg/kg	0.01	< 0.01
2-Methylnaphthalene	N	mg/kg	0.01	0.22
1-Methylnaphthalene	N	mg/kg	0.01	0.16
Hexachlorocyclopentadiene	N	mg/kg	0.01	< 0.01
2,4,6-Trichlorophenol	N	mg/kg	0.01	< 0.01
2,4,5-Trichlorophenol	N	mg/kg	0.01	< 0.01
1-Chloronaphthalene	N	mg/kg	0.01	< 0.01
2-Nitroaniline	N	mg/kg	0.01	< 0.01
1,4-Dinitrobenzene	N	mg/kg	0.01	< 0.01
Dimethyl phthalate	N	mg/kg	0.01	< 0.01
1-3-dinitrobenzene	N	mg/kg	0.01	< 0.01
2-6-dinitrotoluene	N	mg/kg	0.01	< 0.01
Acenaphthylene	N	mg/kg	0.01	0.52
1,2-Dinitrobenzene	N	mg/kg	0.01	< 0.01
3-Nitroaniline	N	mg/kg	0.01	< 0.01
Acenaphthene	N	mg/kg	0.01	0.32
4-nitrophenol	N	mg/kg	0.01	< 0.01
Dibenzofuran	N	mg/kg	0.01	0.22
2,3,5,6-Tetrachlorophenol	N	mg/kg	0.01	< 0.01
2,3,4,6-Tetrachlorophenol	N	mg/kg	0.01	< 0.01
Diethyl phthalate	N	mg/kg	0.01	< 0.01
1-chloro-4-phenoxybenzene	N	mg/kg	0.01	< 0.01
Fluorene	N	mg/kg	0.01	0.28
4-Nitroaniline	N	mg/kg	0.01	< 0.01
Dinitro-o-cresol	N	mg/kg	0.01	< 0.01
Diphenylamine	N	mg/kg	0.01	0.02
Azobenzene	N	mg/kg	0.01	< 0.01
1-bromo-4-phenoxybenzene	N	mg/kg	0.01	< 0.01
Hexachlorobenzene	N	mg/kg	0.01	< 0.01
Pentachlorophenol	N	mg/kg	0.01	< 0.01

Tests marked N are not UKAS accredited.

Results Summary

Report No.: 18-17339

ELAB Reference	134605
Customer Reference	
Sample ID	
Sample Type	SOIL
Sample Location	TP1
Sample Depth (m)	0.20
Sampling Date	24/04/2018

Determinand	Codes	Units	LOD	
SVOC				
Phenanthrene	N	mg/kg	0.01	1.54
Anthracene	N	mg/kg	0.01	0.71
Carbazole	N	mg/kg	0.01	0.18
Dibutyl phthalate	N	mg/kg	0.01	< 0.01
Fluoranthene	N	mg/kg	0.01	3.79
Pyrene	N	mg/kg	0.01	3.44
Butyl benzyl phthalate	N	mg/kg	0.01	< 0.01
Bis-2-ethylhexyladipate	N	mg/kg	0.01	< 0.01
Butyl benzyl phthalate	N	mg/kg	0.01	< 0.01
Benzo(a)anthracene	N	mg/kg	0.01	1.80
Chrysene	N	mg/kg	0.01	2.02
Bis(2-ethylhexyl)phthalate	N	mg/kg	0.01	< 0.01
Benzo(b)fluoranthene	N	mg/kg	0.01	1.62
Benzo(k)fluoranthene	N	mg/kg	0.01	1.59
Benzo(a)pyrene	N	mg/kg	0.01	1.92
Indeno(1,2,3-cd)pyrene	N	mg/kg	0.01	1.01
Dibenz(ah)anthracene	N	mg/kg	0.01	0.44
Benzo[g,h,i]perylene	N	mg/kg	0.01	1.17

Results Summary

Report No.: 18-17339

			ELAB Reference	134606	134607	134609	134611	134612	134613	134614	134615	134617
			Customer Reference									
			Sample ID									
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sample Location	TP1	TP1	TP2	TP3	TP5	TP6	TP6	TP8	TP9
			Sample Depth (m)	0.50	1.20	2.00	1.80	1.60	0.30	1.00	1.00	2.60
			Sampling Date	24/04/2018	24/04/2018	24/04/2018	24/04/2018	24/04/2018	24/04/2018	24/04/2018	24/04/2018	24/04/2018
Determinand	**Codes**	**Units**	**LOD**									
Metals												
Arsenic	N	ug/l	5	12	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Barium	N	ug/l	5	30	6	14	6	6	16	9	6	6
Beryllium	N	ug/l	5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Boron	N	ug/l	5	85	22	58	21	< 5	51	9	< 5	6
Cadmium	N	ug/l	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Chromium	N	ug/l	5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Copper	N	ug/l	5	8	< 5	6	8	< 5	< 5	< 5	< 5	16
Lead	N	ug/l	5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Mercury	N	ug/l	0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	N	ug/l	5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Selenium	N	ug/l	5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Vanadium	N	ug/l	5	33	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Zinc	N	ug/l	5	< 5	9	< 5	18	< 5	< 5	< 5	< 5	< 5
Anions												
Chloride	N	mg/l	1	< 1	1	< 1	2	< 1	< 1	< 1	< 1	< 1
Sulphate	N	mg/l	1	44	2	6	4	4	11	10	3	2
Inorganics												
Hexavalent chromium	N	ug/l	100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
Elemental Sulphur	N	mg/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Sulphide	N	mg/l	0.1	0.4	0.2	0.2	0.2	1.6	0.3	0.2	0.4	0.2
Total Cyanide	N	ug/l	5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Miscellaneous												
Dissolved organic carbon	N	mg/l	1.5	8.0	9.5	5.1	18.5	4.6	5.4	4.2	4.1	4.3
pH	N	pH units	0.1	9.5	8.4	8.3	7.9	8.1	8.1	7.8	8.0	8.0
Phenols												
Total Phenols	N	ug/l	6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6	< 6
Polyaromatic hydrocarbons												
Naphthalene Leachate GCMS	N	ug/l	0.01	0.10	0.09	0.08	0.09	0.09	0.09	0.08	0.09	0.08
Acenaphthylene Leachate GCMS	N	ug/l	0.01	< 0.01	< 0.01	< 0.01	0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.01
Acenaphthene Leachate GCMS	N	ug/l	0.01	0.01	0.01	0.01	0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene Leachate GCMS	N	ug/l	0.01	0.02	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01
Phenanthrene Leachate GCMS	N	ug/l	0.01	0.06	0.03	0.06	0.06	0.03	0.05	0.05	0.03	0.04
Anthracene Leachate GCMS	N	ug/l	0.01	0.02	0.01	0.02	0.02	< 0.01	0.02	0.01	< 0.01	< 0.01
Fluoranthene Leachate GCMS	N	ug/l	0.01	0.07	0.02	0.05	0.07	0.02	0.05	0.05	0.02	0.03
Pyrene Leachate GCMS	N	ug/l	0.01	0.05	0.02	0.03	0.04	0.01	0.04	0.03	0.01	0.02
Benzo (a) anthracene Leachate GCMS	N	ug/l	0.01	0.06	0.04	0.03	0.04	0.02	0.03	0.03	0.01	0.02
Chrysene Leachate GCMS	N	ug/l	0.01	0.06	0.04	0.03	0.04	0.02	0.03	0.03	0.02	0.02
Benzo (b) fluoranthene Leachate GCMS	N	ug/l	0.01	0.03	0.02	0.02	0.02	0.01	0.02	0.02	< 0.01	0.01
Benzo (k) fluoranthene Leachate GCMS	N	ug/l	0.01	0.05	0.03	0.03	0.03	0.02	0.03	0.02	< 0.01	0.02
Benzo (a) pyrene Leachate GCMS	N	ug/l	0.01	0.05	0.03	0.02	0.03	0.02	0.03	0.03	< 0.01	0.02
Indeno (1,2,3-cd) pyrene Leachate GCMS	N	ug/l	0.01	0.03	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02
Dibenzo(a,h)anthracene Leachate GCMS	N	ug/l	0.01	0.06	0.05	0.02	0.02	0.02	0.02	0.02	0.02	0.01
Benzo(ghi)perylene Leachate GCMS	N	ug/l	0.01	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.01
Total PAH(16) Leachate GCMS	N	ug/l	0.01	0.71	0.45	0.46	0.54	0.32	0.48	0.44	0.30	0.34
BTEX												
Benzene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Toluene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Ethylbenzene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Xylenes	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
TPH CWG												
>C5-C6 Aliphatic in Leachate	N	ug/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C6-C8 Aliphatic in Leachate	N	ug/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C8-C10 Aliphatic Leachate	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C10-C12 Aliphatic Leachate	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C12-C16 Aliphatic Leachate	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C16-C21 Aliphatic Leachate	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C21-C35 Aliphatic Leachate	N	ug/l	5	36.5	20.5	12.8	27.9	20.6	11.9	27.8	< 5.0	30.4
>C35-C40 Aliphatic Leachate	N	ug/l	5	24.1	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total (>C5-C40) Aliphatic Leachate	N	ug/l	5	60.6	20.5	12.8	27.9	20.6	11.9	27.8	< 5.0	30.4
>C5-C7 Aromatic in Leachate	N	ug/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C7-C8 Aromatic in Leachate	N	ug/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C8-C10 Aromatic Leachate	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C10-C12 Aromatic Leachate	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C12-C16 Aromatic Leachate	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C16-C21 Aromatic Leachate	N	ug/l	5	< 5.0	< 5.0	15.7	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C21-C35 Aromatic Leachate	N	ug/l	5	15.5	< 5.0	10.7	13.2	13.4	< 5.0	< 5.0	< 5.0	< 5.0
>C35-C40 Aromatic Leachate	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total (>C5-C40) Aromatic Leachate	N	ug/l	5	15.5	< 5.0	26.3	13.2	13.4	< 5.0	< 5.0	< 5.0	< 5.0
Total (>C5-C40) Ali/Aro Leachate	N	ug/l	5	76.1	20.5	39.1	41.1	34.0	11.9	27.8	< 5.0	30.4

Results Summary

Report No.: 18-17339

			ELAB Reference	134618	134619
			Customer Reference		
			Sample ID		
			Sample Type	SOIL	SOIL
			Sample Location	TP10	TP10
			Sample Depth (m)	1.00	1.60
			Sampling Date	24/04/2018	24/04/2018
Determinand	**Codes**	**Units**	**LOD**		
Metals					
Arsenic	N	ug/l	5	6	< 5
Barium	N	ug/l	5	14	9
Beryllium	N	ug/l	5	< 5	< 5
Boron	N	ug/l	5	54	13
Cadmium	N	ug/l	1	< 1	< 1
Chromium	N	ug/l	5	10	< 5
Copper	N	ug/l	5	12	< 5
Lead	N	ug/l	5	< 5	< 5
Mercury	N	ug/l	0.1	0.1	< 0.1
Nickel	N	ug/l	5	< 5	< 5
Selenium	N	ug/l	5	< 5	< 5
Vanadium	N	ug/l	5	6	< 5
Zinc	N	ug/l	5	11	7
Anions					
Chloride	N	mg/l	1	< 1	< 1
Sulphate	N	mg/l	1	11	9
Inorganics					
Hexavalent chromium	N	ug/l	100	< 100	< 100
Elemental Sulphur	N	mg/l	0.1	< 0.1	< 0.1
Sulphide	N	mg/l	0.1	0.2	0.2
Total Cyanide	N	ug/l	5	< 5	< 5
Miscellaneous					
Dissolved organic carbon	N	mg/l	1.5	7.8	4.5
pH	N	pH units	0.1	8.3	7.9
Phenols					
Total Phenols	N	ug/l	6	< 6	< 6
Polyaromatic hydrocarbons					
Naphthalene Leachate GCMS	N	ug/l	0.01	0.07	0.07
Acenaphthylene Leachate GCMS	N	ug/l	0.01	< 0.01	0.01
Acenaphthene Leachate GCMS	N	ug/l	0.01	< 0.01	< 0.01
Fluorene Leachate GCMS	N	ug/l	0.01	< 0.01	0.01
Phenanthrene Leachate GCMS	N	ug/l	0.01	0.05	0.13
Anthracene Leachate GCMS	N	ug/l	0.01	0.03	0.04
Fluoranthene Leachate GCMS	N	ug/l	0.01	0.08	0.16
Pyrene Leachate GCMS	N	ug/l	0.01	0.05	0.11
Benzo (a) anthracene Leachate GCMS	N	ug/l	0.01	0.04	0.08
Chrysene Leachate GCMS	N	ug/l	0.01	0.04	0.07
Benzo (b) fluoranthene Leachate GCMS	N	ug/l	0.01	0.02	0.03
Benzo (k) fluoranthene Leachate GCMS	N	ug/l	0.01	0.03	0.06
Benzo (a) pyrene Leachate GCMS	N	ug/l	0.01	0.02	0.06
Indeno (1,2,3-cd) pyrene Leachate GCMS	N	ug/l	0.01	0.02	0.03
Dibenzo(a,h)anthracene Leachate GCMS	N	ug/l	0.01	0.01	0.02
Benzo(ghi)perylene Leachate GCMS	N	ug/l	0.01	0.02	0.03
Total PAH(16) Leachate GCMS	N	ug/l	0.01	0.51	0.92
BTEX					
Benzene	N	ug/l	1	< 1.00	< 1.00
Toluene	N	ug/l	1	< 1.00	< 1.00
Ethylbenzene	N	ug/l	1	< 1.00	< 1.00
Xylenes	N	ug/l	1	< 1.00	< 1.00
TPH CWG					
>C5-C6 Aliphatic in Leachate	N	ug/l	1	< 1.0	< 1.0
>C6-C8 Aliphatic in Leachate	N	ug/l	1	< 1.0	< 1.0
>C8-C10 Aliphatic Leachate	N	ug/l	5	< 5.0	< 5.0
>C10-C12 Aliphatic Leachate	N	ug/l	5	< 5.0	< 5.0
>C12-C16 Aliphatic Leachate	N	ug/l	5	< 5.0	< 5.0
>C16-C21 Aliphatic Leachate	N	ug/l	5	< 5.0	< 5.0
>C21-C35 Aliphatic Leachate	N	ug/l	5	21.1	24.2
>C35-C40 Aliphatic Leachate	N	ug/l	5	< 5.0	< 5.0
Total (>C5-C40) Aliphatic Leachate	N	ug/l	5	21.1	24.2
>C5-C7 Aromatic in Leachate	N	ug/l	1	< 1.0	< 1.0
>C7-C8 Aromatic in Leachate	N	ug/l	1	< 1.0	< 1.0
>C8-C10 Aromatic Leachate	N	ug/l	5	< 5.0	< 5.0
>C10-C12 Aromatic Leachate	N	ug/l	5	< 5.0	< 5.0
>C12-C16 Aromatic Leachate	N	ug/l	5	< 5.0	< 5.0
>C16-C21 Aromatic Leachate	N	ug/l	5	< 5.0	< 5.0
>C21-C35 Aromatic Leachate	N	ug/l	5	< 5.0	< 5.0
>C35-C40 Aromatic Leachate	N	ug/l	5	< 5.0	< 5.0
Total (>C5-C40) Aromatic Leachate	N	ug/l	5	< 5.0	< 5.0
Total (>C5-C40) Ali/Aro Leachate	N	ug/l	5	21.1	24.2

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Results Summary

Report No.: 18-17339

Asbestos Results

Analytical result only applies to the sample as submitted by the client. Any comments, opinions or interpretations (marked #) in this report are outside UKAS accreditation (Accreditation No2683). They are subjective comments only which must be verified by the client.

Elab No	Depth (m)	Clients Reference	Description of Sample Matrix #	Asbestos Identification	Gravimetric Analysis Total (%)	Gravimetric Analysis by ACM Type (%)	Free Fibre Analysis (%)	Total Asbestos (%)
134605	0.20	TP1	Brown sandy soil with stones,clinker,glass	Amosite (Fibre bundle)	n/t	n/t	n/t	n/t
134606	0.50	TP1	Brown sandy soil with stones and clinker	No asbestos detected	n/t	n/t	n/t	n/t
134607	1.20	TP1	Chalk with stones	No asbestos detected	n/t	n/t	n/t	n/t
134608	1.50	TP2	Brown sandy soil	No asbestos detected	n/t	n/t	n/t	n/t
134609	2.00	TP2	Brown sandy soil with stones and clinker	No asbestos detected	n/t	n/t	n/t	n/t
134610	1.00	TP3	Brown sandy soil with stones and paper	No asbestos detected	n/t	n/t	n/t	n/t
134611	1.80	TP3	Brown soil with stones	No asbestos detected	n/t	n/t	n/t	n/t
134612	1.60	TP5	Chalk	No asbestos detected	n/t	n/t	n/t	n/t
134613	0.30	TP6	Brown sandy soil with stones and clinker	No asbestos detected	n/t	n/t	n/t	n/t
134614	1.00	TP6	Chalk	No asbestos detected	n/t	n/t	n/t	n/t
134615	1.00	TP8	Chalk	No asbestos detected	n/t	n/t	n/t	n/t
134616	0.50	TP9	Brown soil	No asbestos detected	n/t	n/t	n/t	n/t
134617	2.60	TP9	Chalk with stones	No asbestos detected	n/t	n/t	n/t	n/t
134618	1.00	TP10	Brown sandy soil with stones and clinker	No asbestos detected	n/t	n/t	n/t	n/t
134619	1.60	TP10	Chalk with stones	No asbestos detected	n/t	n/t	n/t	n/t

Method Summary

Report No.: 18-17339

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
Aliphatic hydrocarbons in leachate	N		04/05/2018		GC-FID
Aliphatic/Aromatic hydrocarbons in leach	N		08/05/2018		GC-FID
Aromatic hydrocarbons in leachate	N		04/05/2018		GC-FID
Carbon in leachates	N		04/05/2018		IR
Cyanide (L) in solids in leachates	N		03/05/2018		Colorimetry
Elemental Sulphur by HPLC in leachates	N	On prepared leachate	04/05/2018		HPLC
Phenols in leachates	N		03/05/2018		HPLC
Sulphide in solids in leachates	N		03/05/2018		Colorimetry
pH of leachates	N		03/05/2018		Electromeric
Metals by ICP in leachates	N		03/05/2018	101	ICPMS
Sulphide	N	As submitted sample	02/05/2018	109	Colorimetry
Hexavalent chromium	N	As submitted sample	02/05/2018	110	Colorimetry
pH	M	Air dried sample	04/05/2018	113	Electromeric
Acid Soluble Sulphate	U	Air dried sample	03/05/2018	115	Ion Chromatography
Aqua regia extractable metals	M	Air dried sample	02/05/2018	118	ICPMS
Phenols in solids	N	As submitted sample	02/05/2018	121	HPLC
Elemental Sulphur	M	Air dried sample	02/05/2018	122	HPLC
PAH (GC-FID)	M	As submitted sample	02/05/2018	133	GC-FID
PAHs and/or PCBs in leachates	N		04/05/2018	135	GC-MS
SVOC in solids	N	As submitted sample	02/05/2018	167	GC-MS
Water soluble anions	M	Air dried sample	02/05/2018	172	Ion Chromatography
Low range Aliphatic hydrocarbons soil	N	As submitted sample	03/05/2018	181	GC-MS
Low range Aromatic hydrocarbons soil	N	As submitted sample	03/05/2018	181	GC-MS
VOC in solids	M	As submitted sample	03/05/2018	181	GC-MS
BTEX in solids	M	As submitted sample	03/05/2018	181A	GC-MS
Low range Aliphatic hydrocarbons leachat	N		08/05/2018	200	GC-MS
Low range Aromatic hydrocarbons leachate	N		08/05/2018	200	GC-MS
BTEX in leachates	N		08/05/2018	200A	GC-MS
Water soluble boron	N	Air dried sample	02/05/2018	202	Colorimetry
Total cyanide	M	As submitted sample	02/05/2018	204	Colorimetry
Total organic carbon/Total sulphur	N	Air dried sample	04/05/2018	210	IR
Aliphatic hydrocarbons in soil	N	As submitted sample	02/05/2018	214	GC-FID
Aliphatic/Aromatic hydrocarbons in soil	N	As submitted sample	03/05/2018	214	GC-FID
Aromatic hydrocarbons in soil	N	As submitted sample	02/05/2018	214	GC-FID
Anions in leachates	N		03/05/2018	270	Ion Chromatography
Asbestos identification	U	Air dried sample	02/05/2018	PMAN	Microscopy

Tests marked N are not UKAS accredited

Report Information

Report No.: 18-17339

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
NS	Subcontracted to approved laboratory. UKAS accreditation is not applicable.
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"

Soil sample results are expressed on an air dried basis (dried at < 30°C)
Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
PCB congener results may include any coeluting PCBs
Uncertainty of measurement for the determinands tested are available upon request

Deviation Codes

a	No date of sampling supplied
b	No time of sampling supplied (Waters Only)
c	Sample not received in appropriate containers
d	Sample not received in cooled condition
e	The container has been incorrectly filled
f	Sample age exceeds stability time (sampling to receipt)
g	Sample age exceeds stability time (sampling to analysis)

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month
All water samples will be retained for 7 days following the date of the test report
Charges may apply to extended sample storage

shawcity LIMITED
Be sure. Be safe

CERTIFICATE OF CALIBRATION
Phocheck Tiger

CALIBRATION CERTIFICATE NO: 57941

ISSUED BY: SHAWCITY LIMITED
DATE: 21.07.16

APPROVED SIGNATORY: Mordison

NAME: Matthew Jordison

CUSTOMER: Geo-Environmental Services Ltd
INSTRUMENT: Phocheck Tiger
SERIAL NUMBER: T-109403

CALIBRATION METHOD: CM03
AMBIENT CONDITIONS: 20°C ± 2°C and 50% (± 20%) RH

Prior to calibration the instrument was allowed to stabilise in the laboratory for at least 30 minutes.
The instrument was calibrated by exposing the sensor to known values of gas concentrations.
All gases were sampled through the complete probe and in line filter, where applicable.
The reference value is that generated by the certified source and the indicated value is that measured by the instrument.

CALIBRATION RESULTS

GAS	LOT No	REF. VALUE	INDICATED VALUE
Isobutylene	307017	100 ppm	100.0 ppm

COMMENTS:
The reported uncertainty is based on a standard uncertainty multiplied by a coverage factor of $k=2$.
This provides a level of confidence of uncertainty of approximately 95%.
The uncertainty of measurement is ±2 %
The results indicate that the instrument conforms to the applicable parts of the published specification.

Tel: 01793 780622
www.shawcity.co.uk
Instrument House, 91-92 Shrivenham Hundred Business Park
Watchfield, Oxfordshire, SN6 8TY
Fax: 01793 784466
service@shawcity.co.uk

shawcity LIMITED
Be sure. Be safe

SERVICE / INSPECTION SHEET

JOB NUMBER: **57941**
INSTRUMENT: **Phocheck Tiger**

SERIAL NUMBER: **T-109403**
DATE RECEIVED:

Instrument House
91-92 Shrivenham Hundred Business Park
Watchfield
Oxfordshire
SN6 8TY
Fax: 01793 784466
service@shawcity.co.uk

CUSTOMER: Geo-Environmental Services Ltd

ITEMS RECEIVED	CONDITION	RTN?
Instrument	YES	✓
Rubber Boot	YES	✓
Battery Charger	YES	✓
Charging Cradle	YES	✓
Operation Manual		
Quick Start Guide		
Spares Kit		
Comms Cable		
Probe		
Peli Case	YES	✓
Tubing		
Regulator		
Software (Memory Stick)		
	SIGNED:	

TESTS	AS REC'D	AFTER REPAIR
Charging Test	**Ok**	Ok
Battery Test	**Ok**	Ok
Lamp Test	**Ok**	**Ok**
Air Flow Test	**Ok**	Ok
Switch Test	**Ok**	Ok
Moisture Sensitivity	**Failed**	Ok
Sensor Test	**Ok**	Ok
Alarm Test	**Ok**	Ok
PC Comms Test	**Ok**	Ok
Datalog Test	**Ok**	Ok
Display Test	**Ok**	Ok
Physical Inspection	**Failed**	**Ok**
PAT Test*	**Expired**	**Ok**
Firmware Upgrade	**Ok**	Ok
Software Upgrade (usb)		

Lamp housing has been reseated and tested.
New sensor stack fitted.
New filters fitted.
New style probe fitted.
PAT test completed.
Instrument has been repaired, cleaned, serviced, tested and calibrated.

Software upgraded on customer's USB from V1.76 to V1.77. Latest manuals also added.
The instrument firmware has been upgraded to the latest version and may now not function with the customer's current software. Recommend that the customer upgrades their software to V1.77 directly from the help button on their software. Alternatively use the upgraded software that has just been loaded on their USB or via the following link:
http://www.ionscience.com/customer-support/instrument-software

TECHNICIAN: Matthew Jordison MJordison DATE: **21.07.16**